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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/726,829

12/03/2003

James J. Xie

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02/08/2005

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EXAMINER

NHU, DAVID

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/726,829

Applicant(s)

XIE ET AL.

Examiner

David Nhu

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

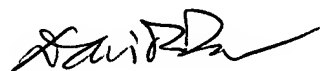
- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.



Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTIONS

Specifications

1. Page 13, "the organic layer 402" should be ~~the organic polymer layer 402~~--

Drawings

2. There is no an organic memory device 1300, no a positive charge 1310 in figure 13.
"the bottom electrode 1304" should be ~~the bottom electrode 1306~~-- See page 18, lines 25.

Claim Objection

3. Claims 1, " the post CMP surface" lacks a clear antecedent basis.

Also, "the depression" should be ~~the surface depression~~--

Claim 10, "the metal ions" lacks a clear antecedent basis.

Also, "the chemical as" should be ~~the chemical solution as~~--

Claim 15, "the post CMP surface" lacks a clear antecedent basis.

Claim Rejections-35 USC & 112 6th Paragraph

4. Claim 7 is rejected by using the phrase "means for". See MPEP & 2181.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Subramanian et al (6,836,398 B1).

Regarding claim 1, Subramanian, (see figures 1, 7, col. 4, lines 28-67, col. 5, lines 1-67,

Art Unit: 2818

col. 6, lines 1-25, col. 8, lines 57-67, col. 9-11, lines 1-67), teaches a method for fabricating an organic memory cell 100 comprising: forming a substrate layer 102 having a surface that acts as a base for an organic memory cell to be created thereupon; performing a CMP process on the surface; exposing a post CMP surface to an inorganic acid for shaping a surface depression thereupon; growing a passive layer 110 within the surface depression; and applying an organic acid to a surface of the grown passive layer, such that a substantially smooth surface texture is obtained (see figure 1).

Regarding claims 2-4, (see figures 1, 6, 7), forming a dielectric layer 112 over the passive layer 110; forming a layer of organic material 114 over the passive layer; forming a second layer 120 on the organic material; plating the passive layer by an electroless process; controlling the plating process by a controller.

Regarding claims 5-6, (see figures 1, 4, 5), etching a surface protrusion of the passive layer to a post CMP surface level; exposing the post CMP surface to the inorganic acid in several cycles; applying the organic acid in several cycles.

Regarding claim 7, Subramanian, (see figures 1, 7), teaches a system for removing surface irregularities from an electrode layer 108 of an organic memory cell 100 comprising: forming an electrode layer 108 having an electrode surface; creating a void on the electrode surface; growing a passive layer 110 within the void, such that a crest surface of the passive layer protrudes above the electrode surface; and leveling off the crest surface to a desired level.

Regarding claim 8, Subramanian also teaches the electrode surface being a flat surface (see figure 1).

Regarding claim 9, Subramanian, (see figures 1, 5), teaches a method for planarizing a

Art Unit: 2818

CMP processed wafer surface comprising: providing a CMP processed wafer having an initial surface with micro scratches; exposing the initial surface to an inorganic acid for shaping a void thereupon; growing a passive layer 110 within the void, such that a surface of the passive layer forms a protrusion out of the void, extending beyond the initial surface; and exposing the passive layer to an organic acid.

Regarding claims 10-14, Subramanian, (see figures 1-7), teaches selectively depositing an activation compound over the void; applying a chemical solution to the activation compound as to initiate an electroless reaction, the chemical solution comprising metal ions as well as a reducing agent; reducing the metal ions of the chemical solution as to plate the passive layer within the void; growing a CuS or Cu layer; employing at least one of CuSO₄ and ZnSO₄ in the chemical solution; controlling the growing of the passive 110 layer within the void.

Regarding claim 15, Subramanian, (see figures 1, 7, col. 4, lines 28-67, col. 5, lines 1-67, col. 6, lines 1-25, col. 8, lines 57-67, col. 9-11, lines 1-67), teaches a method for fabricating an organic memory cell 100 comprising: forming a substrate layer 102 having a surface that acts as a base for an organic memory cell to be created thereupon; performing a CMP process on the surface; exposing a post CMP surface to an inorganic acid for shaping a surface depression thereupon; growing a passive layer 110 within the surface depression; and applying an organic acid to a surface of the grown passive layer, such that a substantially smooth surface texture is obtained (see figure 1); fabricating an organic memory device 700 having a first layer 704 and second layer 706 comprising an organic layer 708 formed therein, the second layer placed over the first layer; and a conductive layer 710 being formed over the organic layer 708 and operative with the first layer to activate a memory portion formed in the organic layer (see figure 7).

Art Unit: 2818

Regarding claims 16-20, Subramanian, (see figures 1-7), also teaches applying an organic acid to the surface of the grown passive layer and a semiconductor material; fabricating the passive layer via a Cu or CuS formation; fabricating the organic memory cell such that the second layer is contact with the first layer; fabricating the organic memory cell such that the organic layer in contact with the conductive layer.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Subramanian'267, Subramanian'954, Lyons'060, Oglesby'068 are cited as of interest.
6. A shortened statutory period for response to this action is set to expired 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned see 710.02 (b)).
7. Any inquiry concerning this communication on earlier communications from the examiner should be directed to David Nhu, (571)272-1792. The examiner can normally be reached on Monday-Friday from 7:30 AM to 5:00 PM. The examiner's supervisor, David Nelms can be reached on (571)272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956

David Nhu

Art Unit 2818

